CLAIMS

We Claim:

5   1.   A method for determining a predictor set of features associated with a
          target, comprising:

          (a) selecting a predictor set of features;

          (b) adding at least one complement to said predictor set based on a
          quality of prediction;

10   (c) checking to see if all of said features are repeated; and

          (d) removing at least one feature from said predictor set.

     2.   A method as recited in claim 1, further comprising repeating steps (d), (b)
          and then (c) until the same predictor set of features is achieved as many

15   times as the number of features in the predictor set.

     3.   A method as recited in claim 1, wherein the quality of prediction for adding
          said complement to said predictor set is a defined value that determines a
          threshold level for adding said complement to said predictor set.

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     4.   A method as recited in claim 2, wherein said same predictor set of features
          may be compared to other associated predictor sets to determine associated
          pathways that may be used in network reconstruction.

25   5.   A method as recited in claim 2, wherein said same predictor set of features
          may be compared to other non-associated predictor sets to determine
          associated pathways that may be used in network reconstruction.

     6.   A method as recited in claim 2, wherein said predictor set may be used in

30   determining clusters.

     7.   A method as recited in claim 2, wherein said feature that is removed from
          said predictor set is the first feature defined in the predictor set.

8.   A method as recited in claim 1, wherein said selected predictor set is a set of k-1 features.

9.   A method as recited in claim 1, wherein said features of said predictor set are selected at random.

10.   A method as recited in claim 1, wherein said features of said predictor set are selected in a defined order.

11.   A method as recited in claim 1, wherein said feature that is removed from said predictor set is the earliest feature defined in the predictor set.

12.   A method as recited in claim 1, wherein the predictor set and target are vectors in M-dimensional space.

13.   A method as recited in claim 1, wherein said selected predictor set has a size of between 1-1000 features.

14.   A method as recited in claim 1, wherein said checking step is performed by a separate algorithm.

15.   A method of network reconstruction comprising:
(a) selecting a target;
(b) selecting a predictor set of features;
(c) adding a complement to said predictor set based on a quality of prediction;
(d) checking to see if all of said features are repeated; and
(e) removing one feature from said predictor set.

16.   A method as recited in claim 15, wherein said target can be changed and subsets of targets can be formed for predicting other associated predictor sets of features.

17. A method as recited in claim 15, further comprising repeating steps (d), (b) and then (c) until the same predictor set of features is achieved as many times as the number of features in the predictor set.

5 18. A method as recited in claim 15, wherein said same predictor set of features may be compared to other associated predictor sets to determine associated pathways that may be used in network reconstruction.

19. A method as recited in claim 15, wherein said same predictor set of
10 features may be compared to other non-associated predictor sets to determine associated pathways that may be used in network reconstruction.

20. A method a recited in claim 15, wherein said predictor set may be used in
15 determining clusters.

21. A method as recited in claim 15, wherein said feature that is removed from said predictor set is the first feature defined in the predictor set.

20 22. A method as recited in claim 15, wherein said selected predictor set is a set of k-1 features.

23. A method as recited in claim 15, wherein said features of said predictor set are selected at random.

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24. A method as recited in claim 15, wherein said features of said predictor set are selected in a defined order.

25. A method as recited in claim 15, wherein said feature that is removed from
30 said predictor set is earliest feature defined in the predictor set.

26. A method as recited in claim 15, wherein the predictor set and target are vectors in single dimensional space.

27. A method as recited in claim 15, wherein the predictor set and target are vectors in M-dimensional space.

28. A method as recited in claim 15, wherein said selected predictor set has a size of between 1-1000 features.

29. A method as recited in claim 15, wherein said checking step is performed by a separate algorithm.

30. A method of classification of experiments, comprising:
   (a) selecting a target whose values are chosen to represent the class of the experiment;
   (b) selecting a predictor set of features;
   (c) adding a complement to said predictor set based on a quality of prediction;
   (d) checking to see if all of said features are repeated; and
   (e) removing one feature from said predictor set.

31. Computer software for performing network reconstruction, comprising an algorithm that performs the steps of:
   (a) selecting a target;
   (b) selecting a predictor set of features;
   (c) adding a complement to said predictor set based on a quality of prediction;
   (d) checking to see if all of said features are repeated; and
   (e) removing one feature from said predictor set.

32. Computer software as recited in claim 31, wherein any of said steps of said algorithm are user defined.

33. Computer software as recited in claim 31, wherein any of said steps of said algorithm are software defined.

34. A system for performing network reconstruction, comprising:

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(a) a computer; and

(b) computer software for running on said computer, said computer
software performing network reconstruction according to the steps of:

(i) selecting a predictor set of features;

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(ii) adding a complement to said predictor set based on a
quality of prediction;

(iii) checking to see if all of said features are repeated; and

(iv) removing one feature from said predictor set.

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